Head and Neck Exam

Charlie Goldberg, M.D.
Professor of Medicine, UCSD SOM
Charles.Goldberg@va.gov

Observation and Palpation

Note right sided neck/jaw area swelling and R v L asymmetry

- Inspection face & neck:
  - Does anything appear out of ordinary in Head & Neck?
  - Bumps/lumps, asymmetry, swelling, discoloration, bruising/trauma?
  - anything hidden by hair?
- Inspection & palpation of scalp, hair

Lymph Nodes of Head & Neck - Physiology

- Major lymph node groups located symmetrically either side of head & neck.
- Each group drains specific region

Lymph Node Enlargement – Major Causes

- **Enlarged** if **inflammation** (most commonly infection) or **malignancy**

  Infection: Acute, tender, warm

  – Primary **region drained** also **involved** (e.g neck nodes w/strep throat)

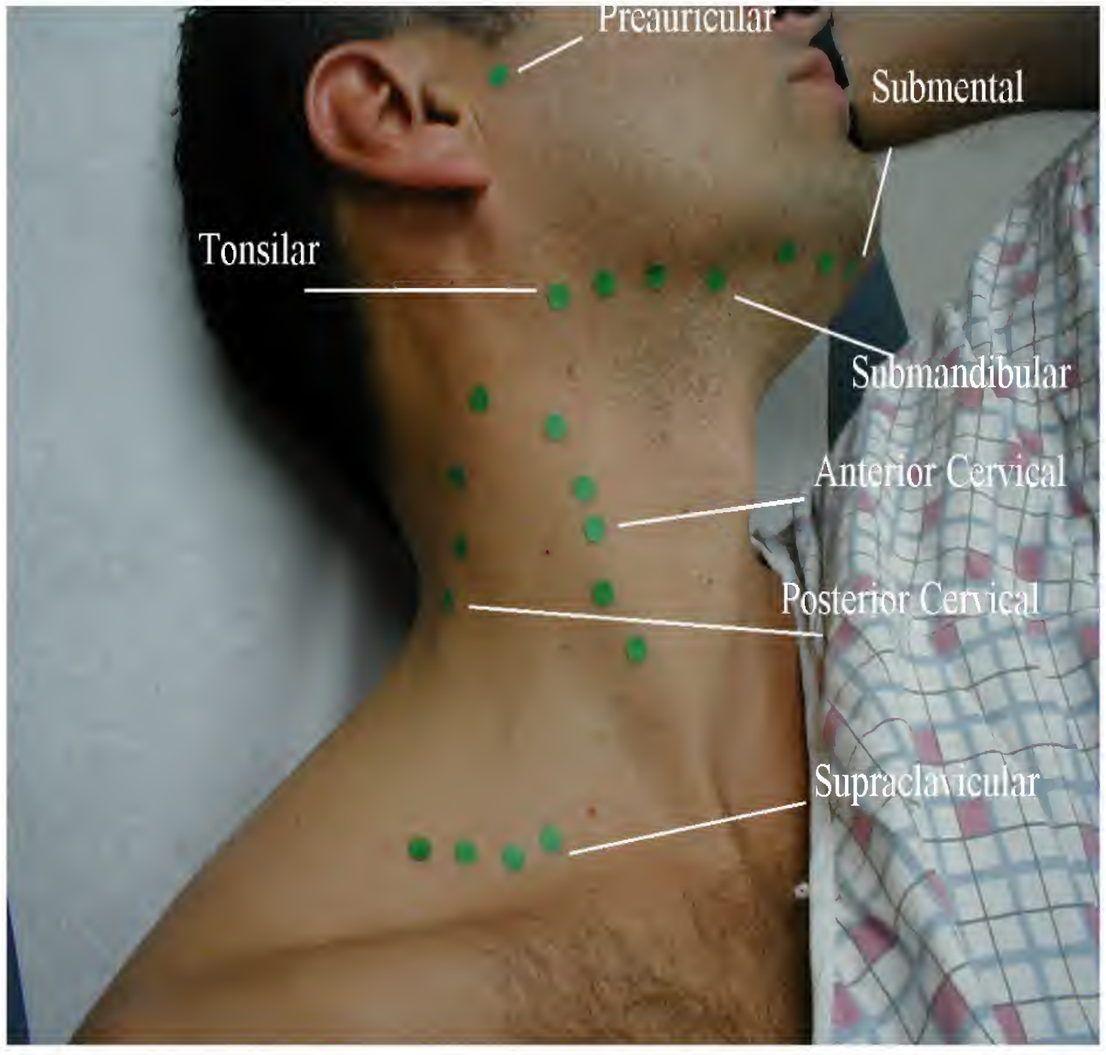
  – Sometimes get **diffuse** enlargement in response to **generalized infection** or systemic inflammatory process (.e.g TB, HIV, Mono)

  Malignancy:

  – **Slowly progressive**, firm, multiple nodes involved, stuck together & to underlying structures.

  – **Primary** site malignancy could be **nodes** (e.g. lymphoma) **or adjacent** region (e.g. intra-oral squamous cell ca)

Lymph Node Anatomy & Drainage



Ant Cerv→Throat, tonsils, post pharynx, thyroid

Post Cerv→Back of skull

Tonsillar→Tonsils, posterior pharynx

Sub-Mandibular→Floor of mouth

Sub-Mental→Teeth

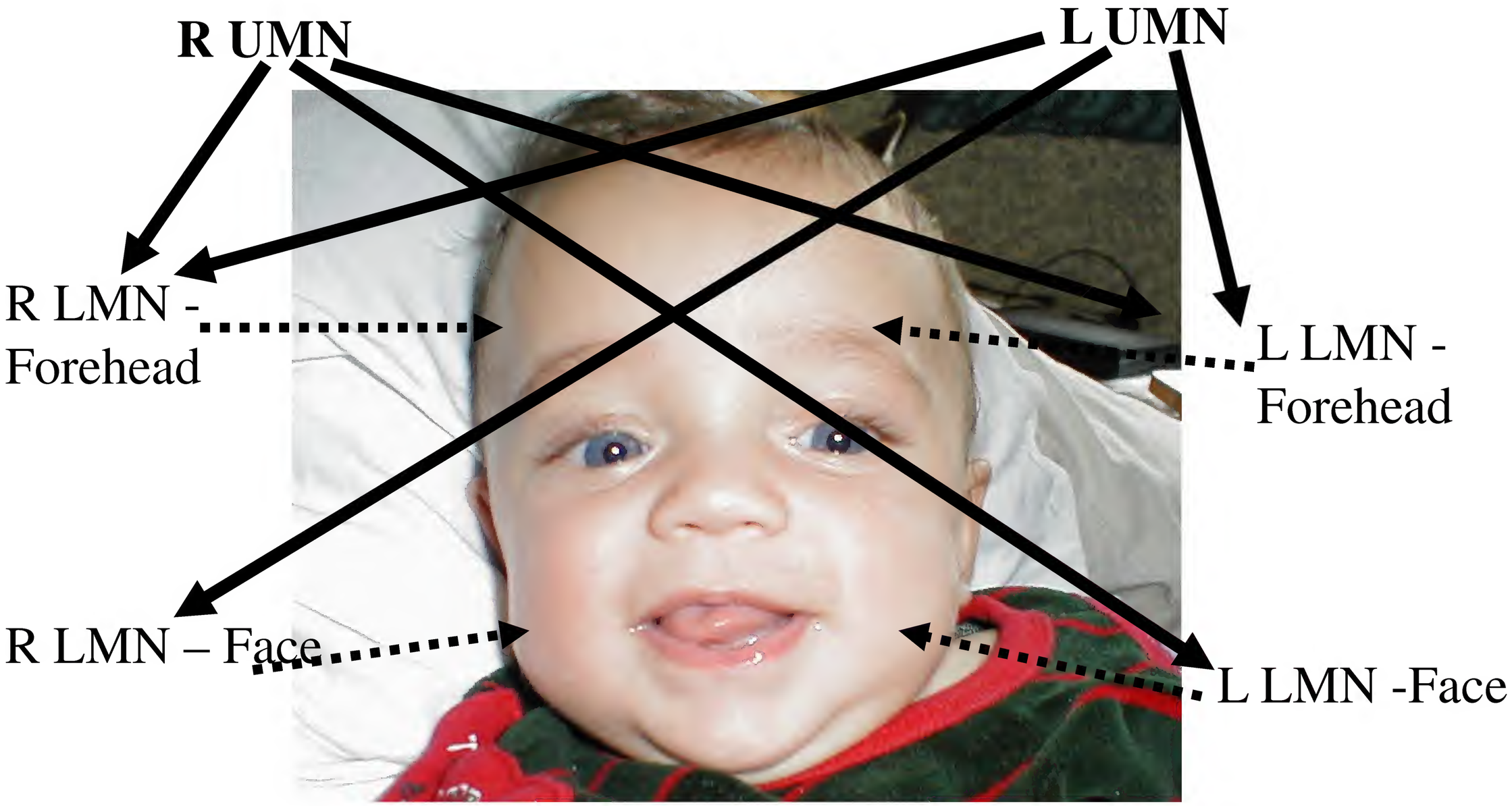
Supra-Clavicular→Thorax

Pre-Auricular→Ear

Lymph Node Exam

- Gently walk fingers along general regions – comparing R to L

Function CN 7 – Facial Nerve
Facial Symmetry & Expression - Precise Pattern of Inervation



CN 7 – Exam

- Observe facial symmetry
- Wrinkle Forehead
- Keep eyes closed against resistance
- Smile, puff out cheeks

Cute.. and symmetric!

Pathology: Peripheral CN 7 (Bell's) Palsy

Patient can't close L eye, wrinkle L forehead or raise L corner mouth→L CN 7 Peripheral (i.e. LMN) Dysfunction

<u>Central (i.e. UMN) CN 7 dysfunction (e.g. stroke) - not shown:</u> Can wrinkle forehead bilaterally; will demonstrate loss of lower facial movement on side opposite stroke.

Function CN 5 - Trigeminal

- Sensation:
  - 3 regions of face: Ophthalmic, Maxillary & Mandibular
- Motor:
  - Temporalis & Masseter muscles

Function CN 5 – Trigeminal (cont)

Motor

Temporalis (clench teeth)

Masseter (move jaw side-side)

Sensory

Ophthalmic(V1)

Maxillary (V2)

Mandibular (V3)

Corneal Reflex: Blink when cornea touched - Sensory CN 5, Motor CN 7

Testing CN 5 - Trigeminal

- Sensory:
  - Ask pt to close eyes
  - Touch ea of 3 areas (ophthalmic, maxillary, & mandibular) lightly, noting whether patient detects stimulus.
- Motor:
  - Palpate temporalis & mandibular areas as patient clenches & grinds teeth

  Anatomy of Masseter and Temporalis Muscles

  (http://www.sciencelearn.org.nz)
- Corneal Reflex:
  - Tease out bit of cotton from q-tip - Sensory CN 5, Motor CN 7
  - Blink when touch cornea with cotton wisp

The Ear – Functional Anatomy and Testing (CN 8 – Acoustic)

- Crude tests hearing – rub fingers next to either ear; whisper & ask pt repeat words
- If sig hearing loss, determine Conductive (external canal up to but not including CN 8) v Sensorineural (CN 8)

Inner Ear Anatomy

(www.ncbegin.org/audiology)

Animated Ear Function: http://www.learnerstv.com/animation/animation.php?ani=313&cat=medical

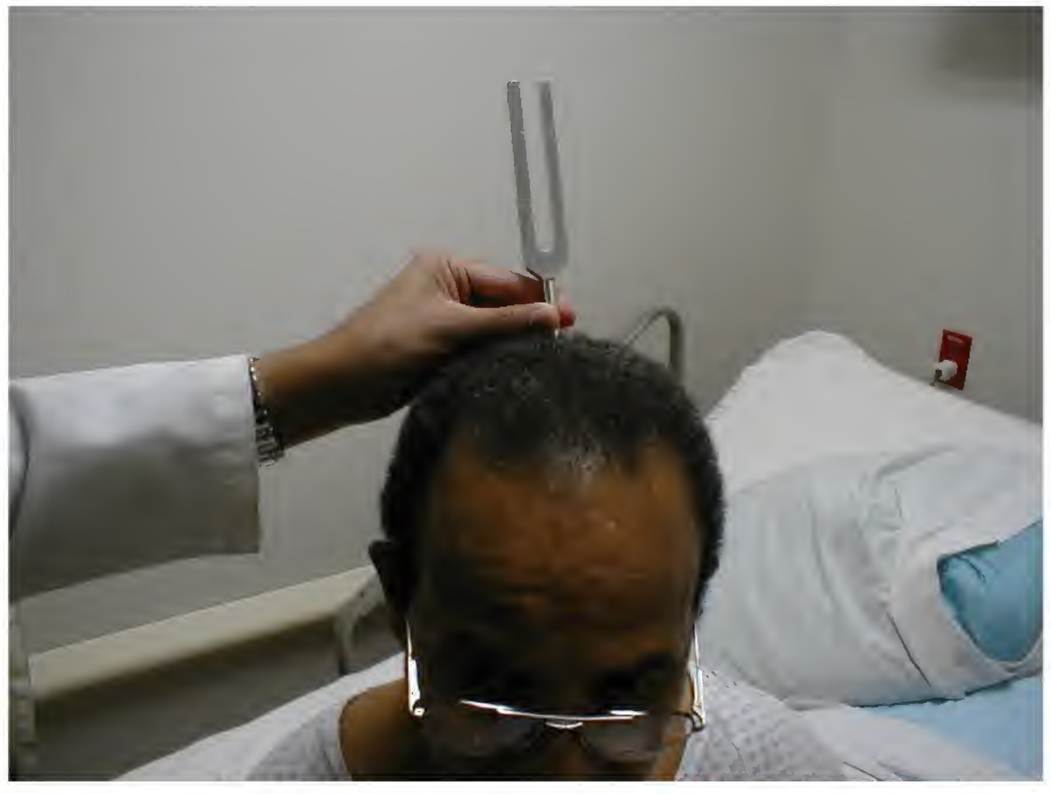
CN 8 - Defining Cause of Hearing Loss - Weber Test

- 512 Hz tuning fork - this (& not 128Hz) is well w/in range normal hearing & used for testing
  - Get turning fork vibrate→ striking ends against heel of hand **or**

    Squeeze tips between thumb & 1st finger
- Place vibrating fork mid line skull
- Sound should be heard =ly R & L → bone conducts to both sides.

CN 8 - Weber Test (cont)

- If **conductive** hearing loss (e.g. obstructing wax in canal on L)→louder on L as less competing noise.
- If **sensorineural** on L→louder on R
- Finger in ear mimics conductive loss

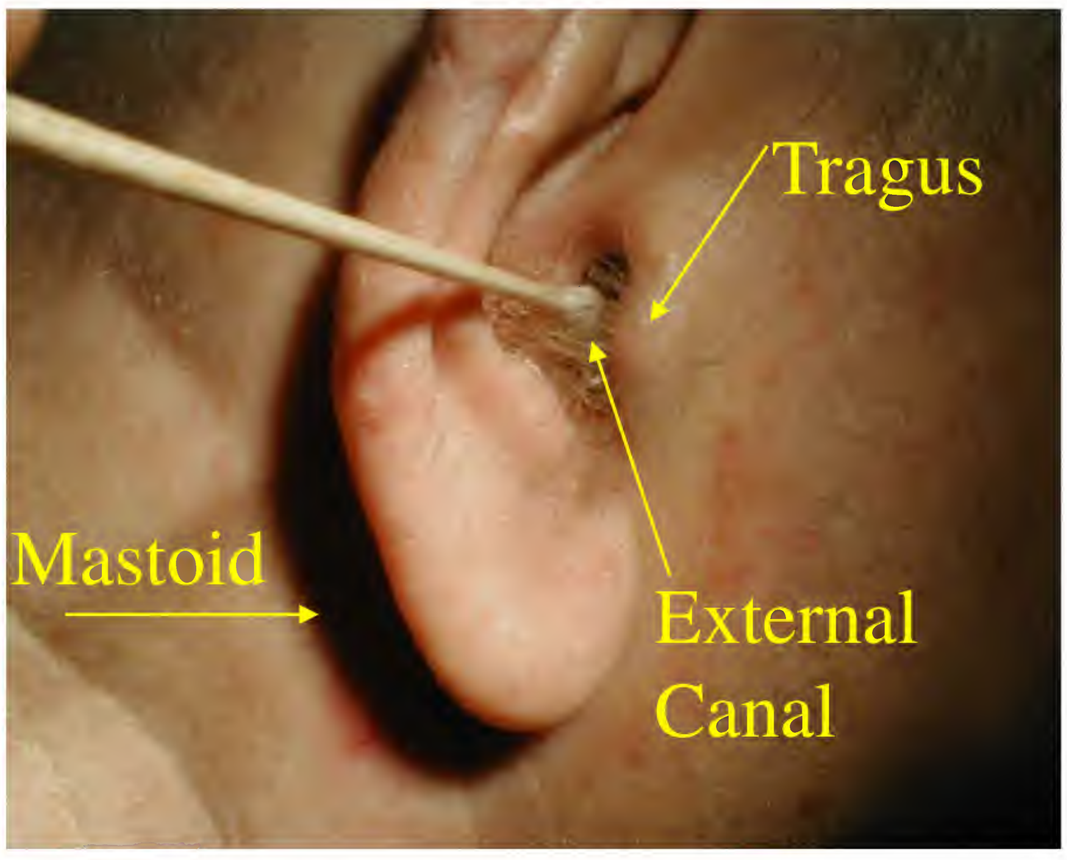


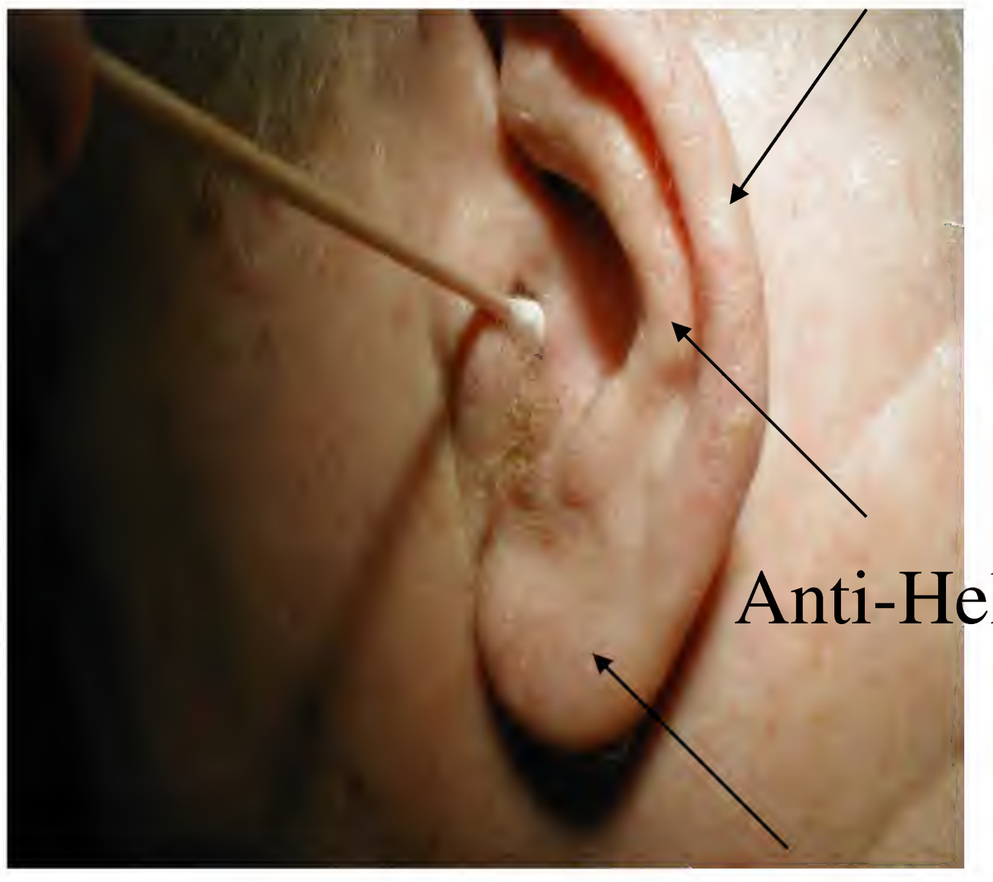
CN 8 - Defining Cause of Hearing Loss - Rinne Test

- Place vibrating 512 hz tuning fork on mastoid bone (behind ear).
- Patient states when can't hear sound.
- Place tines of fork next to ear→ should hear it again – as air conducts better then bone.
- If BC better then AC, suggests **conductive** hearing loss.
- If **sensorineural** loss, then AC still > BC

Note: Weber & Rinne difficult to perform in Anatomy lab due to competing noise – repeat @ home in quiet room!

Examining the External Structures of The Ear - Observation

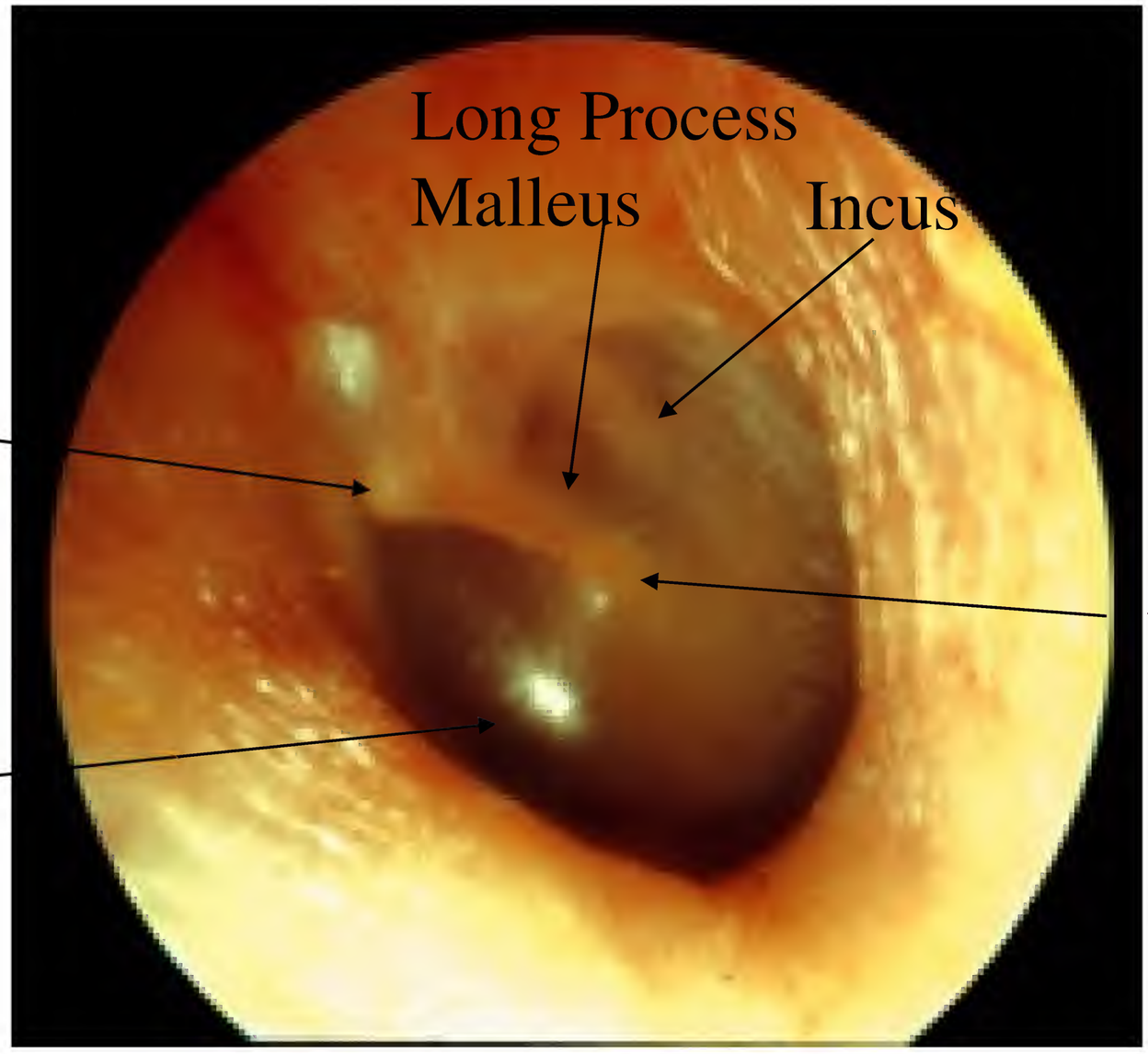




Note: Picture on L →normal external ear; picture on R →swollen external canal, narrowed by inflammation

Normal Tympanic Membrane

NOSE



<u>Left Ear</u> –
Malleus points down and back

Images courtesy American Academy of Pediatrics
http://www.aap.org/otitismedia/www/

Selected Tympanic Membrane Pathology

Normal

Images courtesy American Academy of Pediatrics
http://www.aap.org/otitismedia/www/

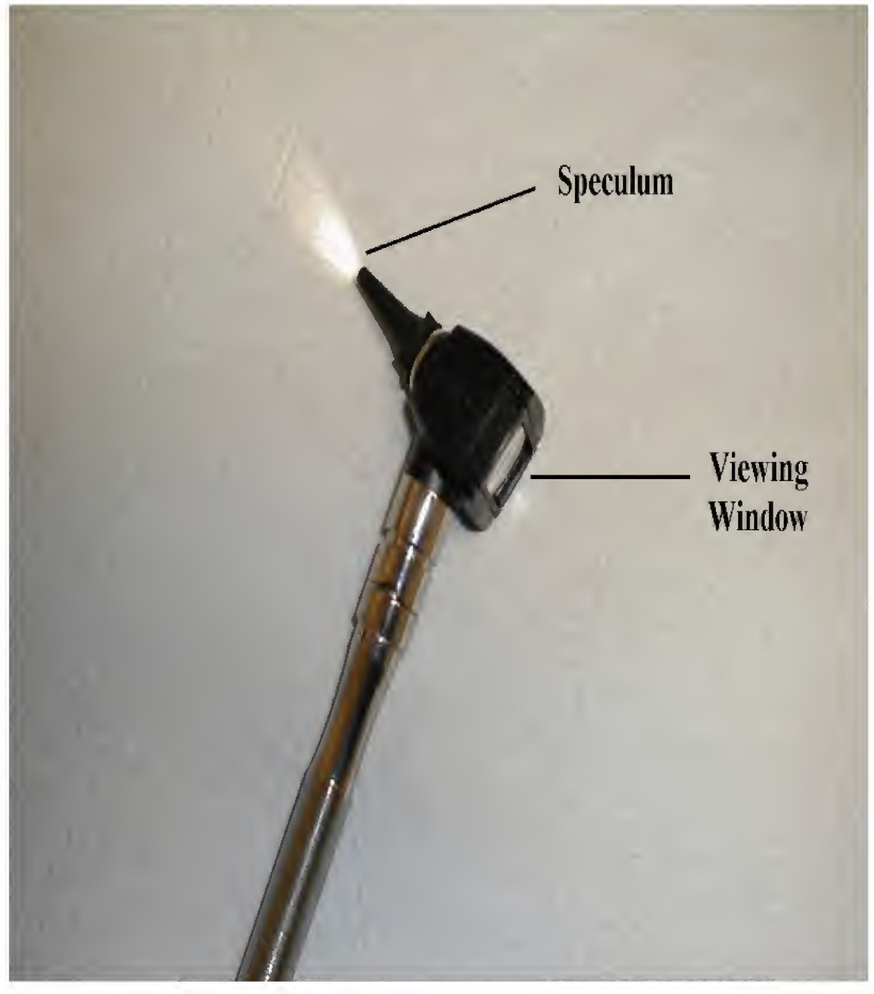
University of Toronto - Otitis Media

University of Toronto - Perforated Tympanic Membrane

University of Toronto - Wax

Using Your Otoscope

- Make sure battery's charged!
- Gently twist Otoscopic Head (clockwise) onto handle
- Twist on disposable, medium sized speculum
- Hold in R hand→ R ear, L hand→ L ear



Otoscope W/Magnified Viewing Head

- Advantage→ magnified view, larger field
- Speculum twists on; viewing same as for conventional head
- Rotate wheel w/finger while viewing tympanic membrane to enhance focus (default setting is green line)

http://www.welchallyn.com

Otosocopy Basics

- Make sure patient seated comfortably & ask them not to move
- Place tip speculum in external canal under direct vision
- Gently pull back on top of ear
- Advance scope slowly as look thru window – extend pinky to brace hand
- Avoid fast, excessive movement – Stop if painful!

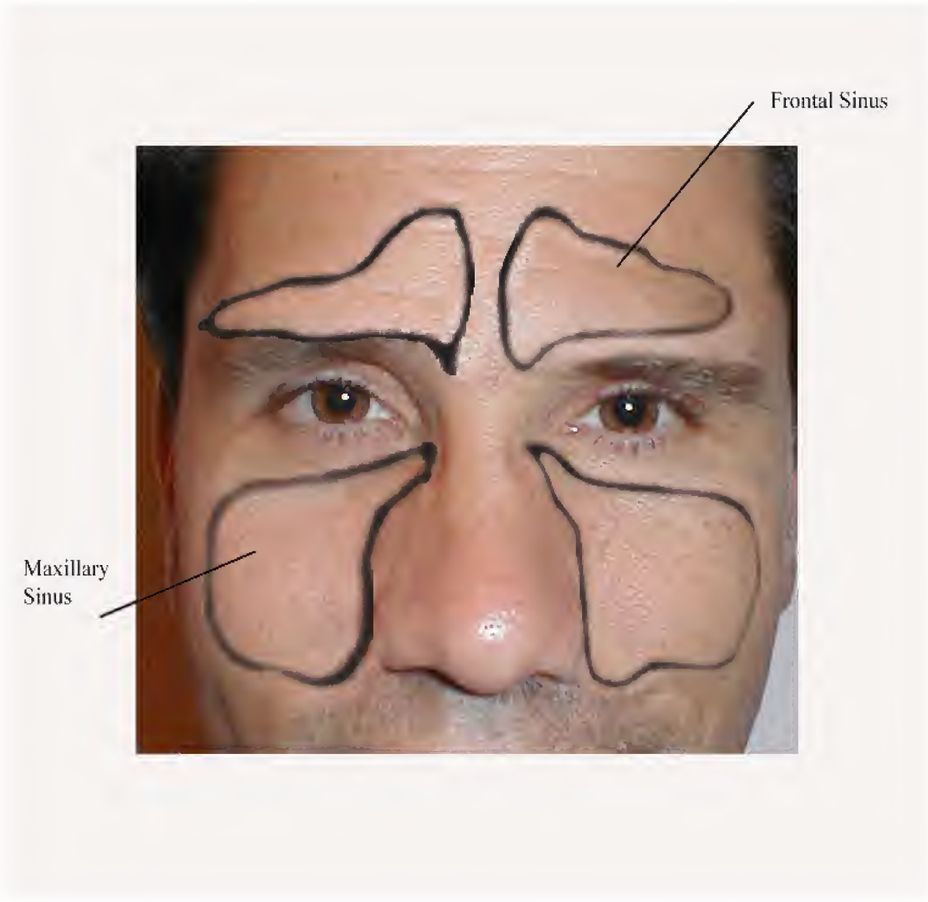
Look Dad - Otoscopy Sure is Easy!

The Nose

- **Observe external** structure for symmetry
- Check **air movement** thru ea nostril separately.
- **Smell** (CN 1 – Olfactory) not usually assessed – screen w/**alcohol pad smell test**→detect odor from pad when presented @ 10cm. Test ea nostril separately
- **Look** into **each nostril** using **otoscope** w/speculum – note color, septum (medial), turbinates (lateral)

Sinuses

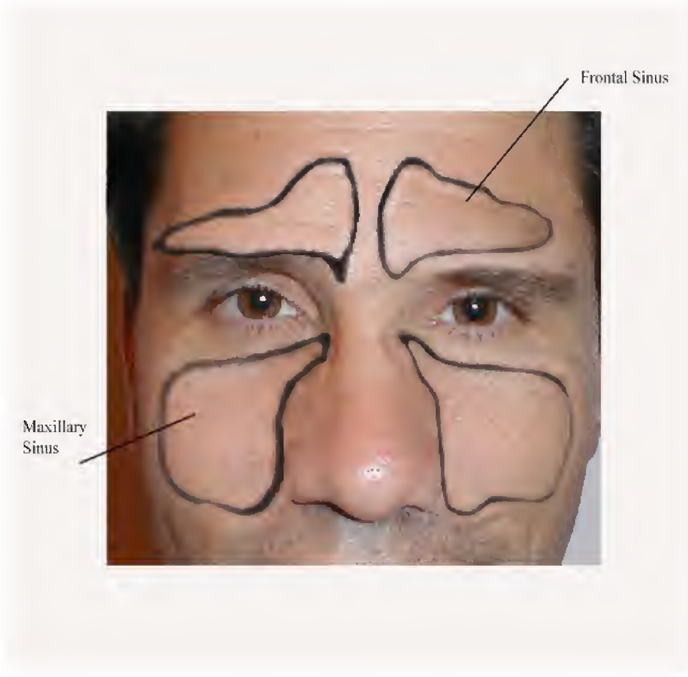
- Normally Air filled (cuts down weight of skull), lined w/upper respiratory epithelium→keeps antigens/infection from lung
- Maxillary & frontal accessible to exam (others not)
- Exam only done if concern re sinus infection/pathology



Location of Frontal and Maxillary Sinuses

Sinuses (cont)

- **Palpate** (or percuss) sinus→ elicits pain if inflamed/infected
- **Transilluminate**→ normally, light passes across sinus→visible thru roof of mouth.. Infection→ swelling & fluid→ prevents transmission
- **Room** must be **dark**
- Placed otoscope on infra-orbital rim while look in mouth for light

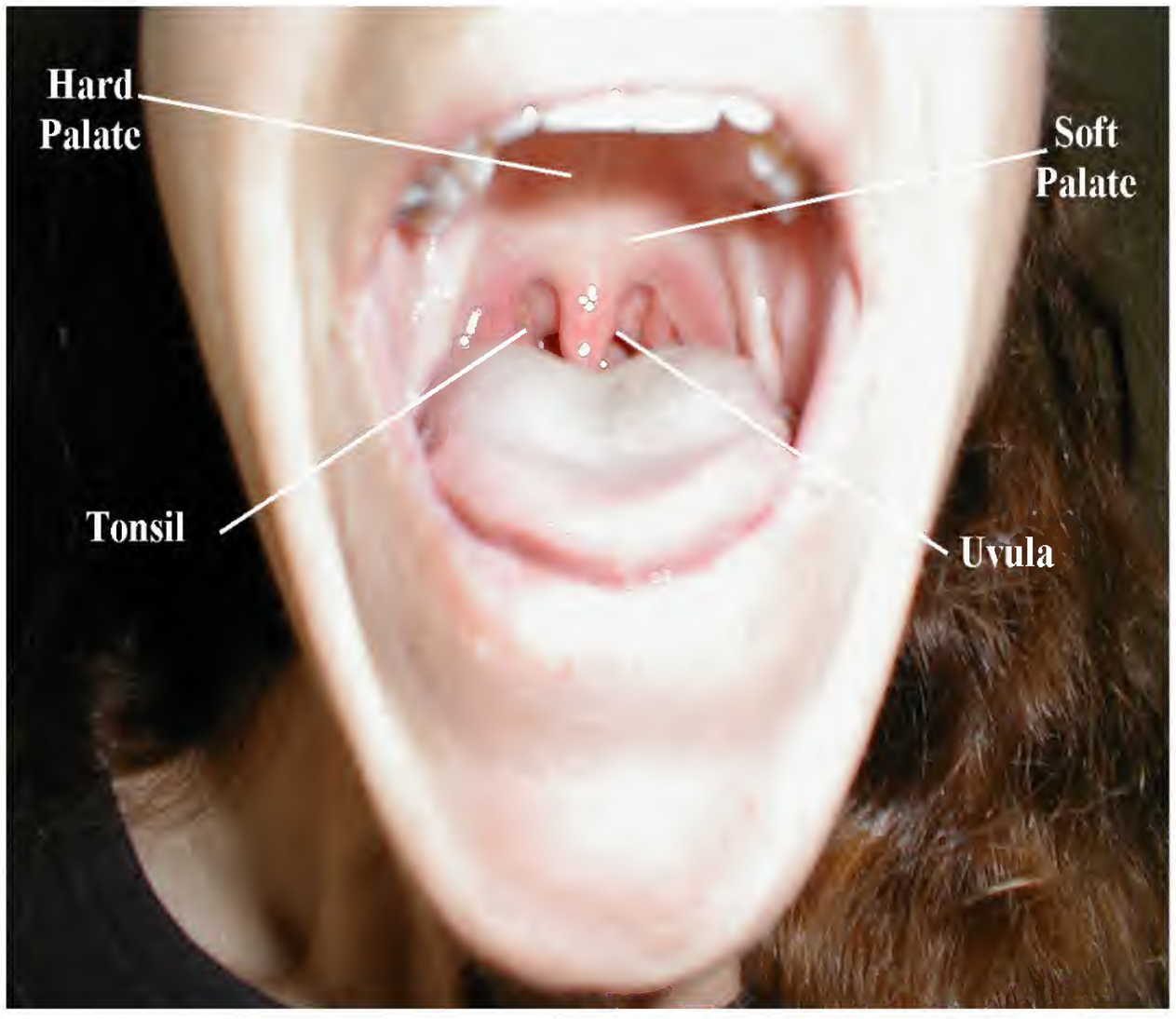


Palpate or Percuss Sinuses
In areas outlined above

Note: Not possible to see transmitted light if room brightly lit (e.g. the anatomy lab) – try this @ home in dark room!

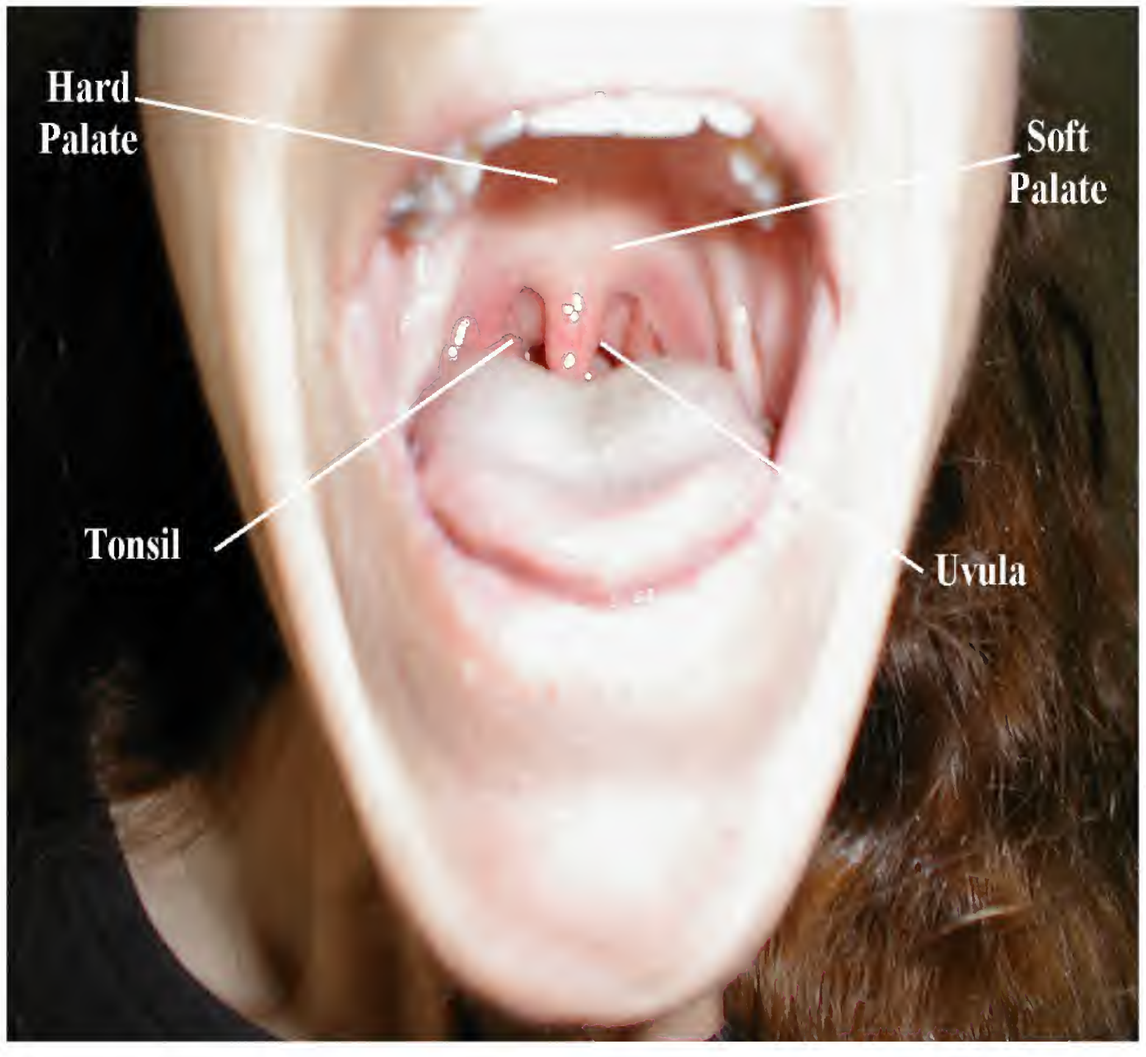
Transillumination

Oropharynx



- **Inspect posterior pharynx** (back of throat), tonsils, mucosa, teeth, gums, tongue – **use tongue depressor & light** – otoscope works as flashlight (on newer Welch Allyn, head twists off)
- Can **grasp tongue** w/a gauze pad & move it side to side for better **visualization**
- **Palpate abnormalities** (gloved hand)

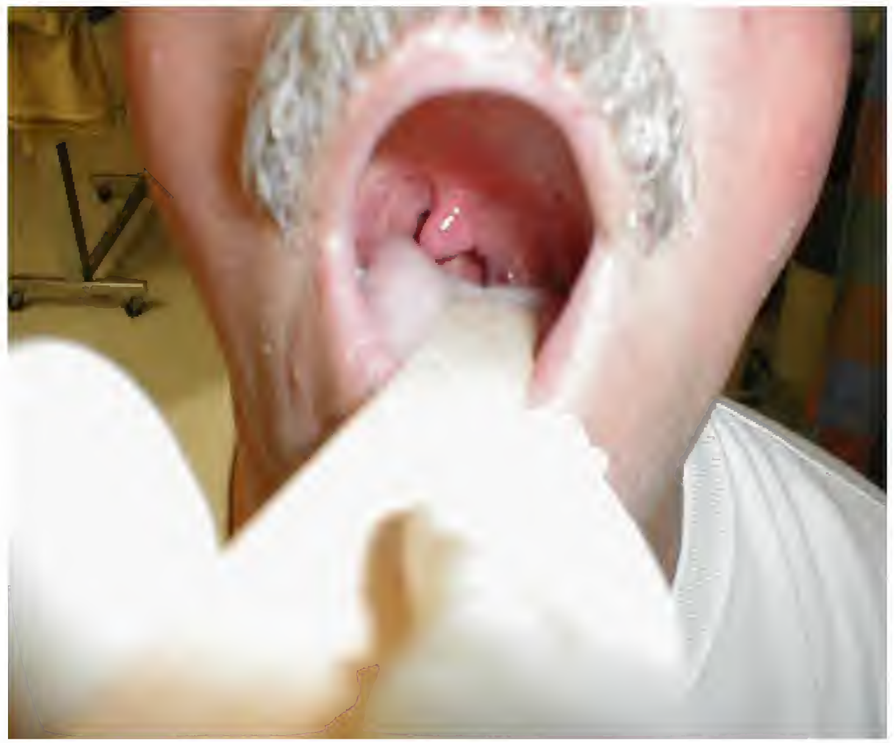
Oropharynx: Anatomy & Function CNs 9 (glosopharyngeal), 10 (vagus) & 12 (hypoglossal)



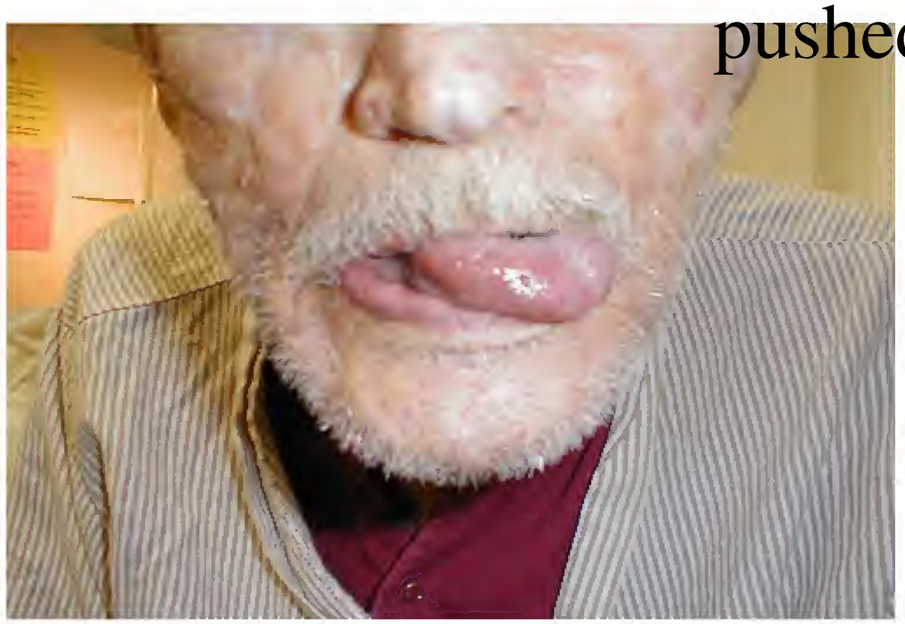
- **Uvula midline - CN 9**
- Stick out tongue, say "**Ahh**" – use tongue depressor if can't see
  - palate/uvula rise -**CN 9, 10**
- **Gag Reflex** – provoked w/tongue blade or q tip - **CN 9, 10**
- **Tongue midline** when patient sticks it out→**CN 12**
  - check **strength** by directing patient push **tip** into **inside** of **either cheek** while you push from outside

Selected Pathology of Oropharynx

L CN 9 palsy – uvula pulled to R



L peri-tonsilar abscess – uvula pushed to R



L CN 12 palsy – tongue deviates L

What about the Teeth?

- Dental health has big implications:
  - Nutrition (ability to eat)
  - Appearance
    - Self esteem
    - Employability
    - Social acceptance
  - Systemic disease→endocarditis, ? other
  - Local problems:
    - Pain, infection
- Profound lack of access to care→MDs primary Rx

Anatomy & Exam

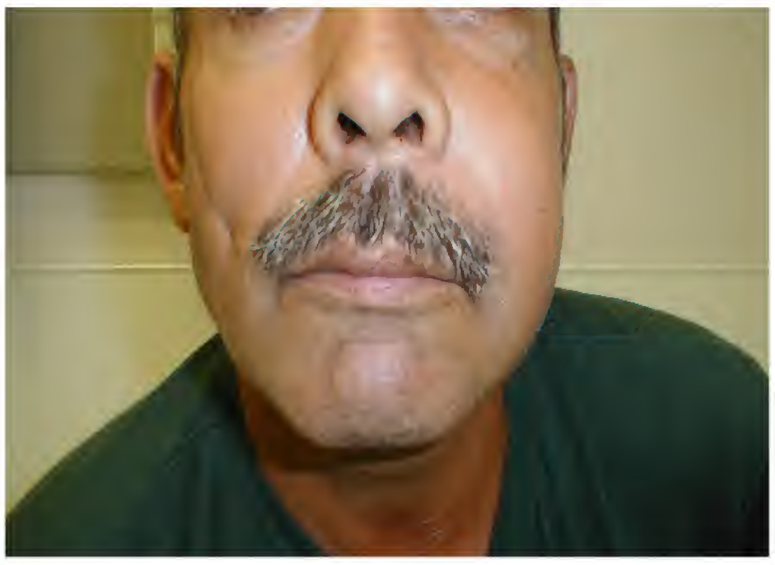
- 16 top, 16 bottom
- Examine all
  - Observation teeth, gums
  - Gloved hands, gauze, tongue depressor & lighting if abnormal
- Look for:
  - General appearance
    - ? All present
    - Broken, Caries, etc?
  - Areas pain, swelling→ ? infection
    - Localize: ? Tooth, gum, extent

Dental Anatomy
(http://www.nytimes.com)

Anatomy of a Tooth
(http://www.nlm.nih.gov/medlineplus

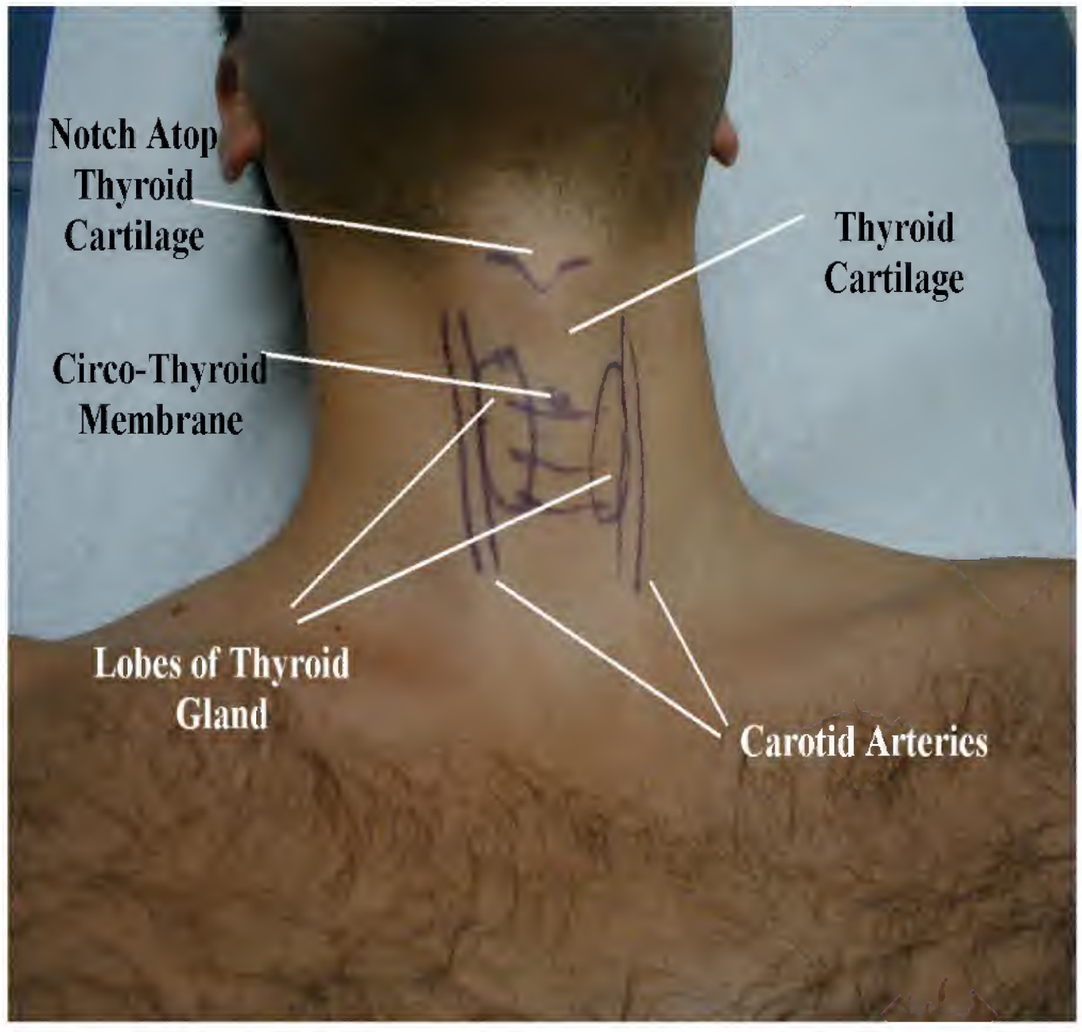
Common Dental Pathology

[Dental Caries and Common Dental Emergencies – Journal of American Family Practice]



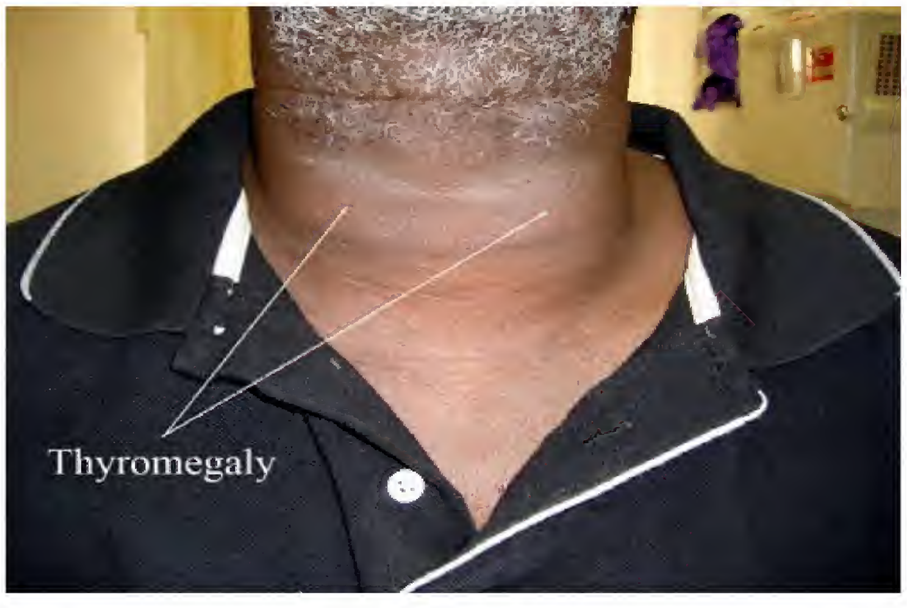
Facial Swelling (left) Secondary to Tooth Abscess

Thyroid Anatomy



Thyroid Anatomy - National Institutes of Health
(http://www.nlm.nih.gov/medlineplus)

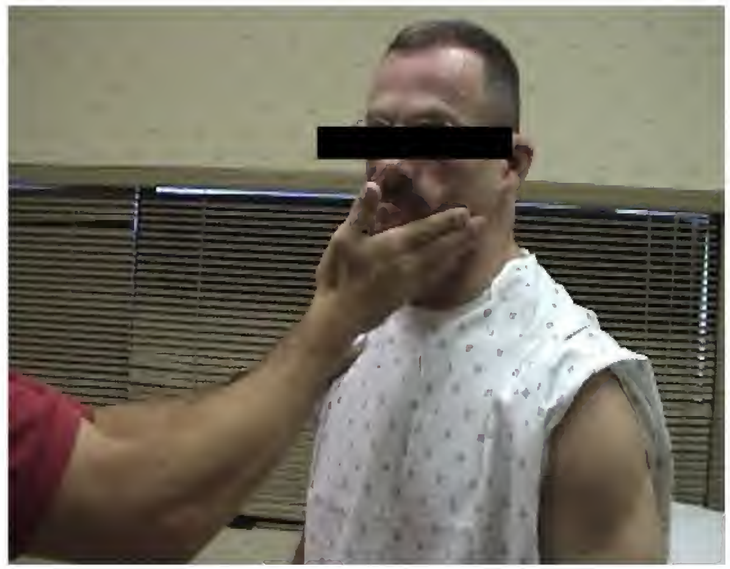
Thyroid Exam



- **Observe** (obvious abnormalities, trachea)
- From front or behind→ **Identify landmarks** (touch and vision)
- **Palpate** as patient **swallows** (drinking water helps)
- ? Focal or **symmetric enlargement**, **nodules**.

Neck Movement
(CN 11 – Spinal Accessory)

- **Turn head** to **L** into R hand→ function of **R Sternocleidomastoid** (SCM)
- **Turn head** to **R** into L hand (**L SCM**)
- **Shrug shoulders** into your hands



Summary Of Skills

- □ Wash hands
- □ Observation head & scalp; palpation lymph nodes
- □ Facial symmetry, expression (CN 7)
- □ Facial sensation, muscles mastication (CN 5)
- □ Auditory acuity; Weber & Rinne Tests (CN 8)
- □ Ear: external and internal (otoscope)
- □ Nose: observation, nares/mucosa (otoscope), smell (CN 1)
- □ Sinuses: palpation, transillumination
- □ Oropharynx: Inspection w/light & tongue depressor→ uvula, tonsils, tongue (CNs 9, 10, 12); “Ahh”; Gag reflex; Teeth
- □ Thyroid: Observation, palpation
- □ Neck/Shoulders: Observation, range motion, shrug (CN 11)

Time Target: < 10 min